

REMARKS

Claims 1- 3, 5 - 12 and 14 - 15 remain active in this application. Claims 4 and 13 have previously been canceled. The specification has again been reviewed and editorial revisions made where seen to be appropriate. Claim 1 has been amended to more clearly recite novel features of the invention. Support for the amendment of claim 1 is found throughout the application, particularly in Figures 1 - 4 and the description thereof on pages 5 - 9. No new matter has been introduced into the application.

The present office action is the fifth action on the merits of this application (which has been pending for in excess of four years) and follows the reopening of prosecution subsequent to filing of a Notice of Appeal and an Appeal Brief. Accordingly, Supervisory review is respectfully requested under the provisions of M.P.E.P. §707.02.

Claims 1, 3, 5, 7 and 8 (and, apparently, claim 2) have been rejected under 35 U.S.C. §103 as being unpatentable over Mizoguchi in view of Vannatta et al. Claims 9, 11, 12 and 15 have been rejected under 35 U.S.C. §103 as being unpatentable over Werling et al. in view of Bowen et al. Claim 6 has been rejected under 35 U.S.C. §103 as being unpatentable over Mizoguchi in view of Vannatta et al. and Bowen et al. Claim 7 is rejected under 35 U.S.C. §103 as being unpatentable over Mizoguchi in view of Vannatta et al. and Werling et al. Claim 10 has been rejected under 35 U.S.C. §103 as being unpatentable over Mizoguchi in view of Bowen et al. and Vannatta et al. (the same combination of references applied to claim 6 but in different order). Claim 14 has been rejected under 35 U.S.C. §103 as being unpatentable over Werling et al. in view of Bowen et al. and Mizoguchi. All *six* of these grounds of rejection are respectfully traversed

for the reasons of record in regard to references other than the newly cited reference to Vannatta et al. and the further remarks provided below.

In response to remarks previously presented, the Examiner asserts in regard to claim 1 that "applicant's invention is shown *in its entirety* by Mizoguchi, the only exception being that it the antenna (sic), which is structurally included, is not used for transmission." (emphasis added). It is respectfully that this assertion is incorrect. Beyond the Examiner's admission that antenna 11b is not usable for transmission, Mizoguchi does not teach or suggest the following features explicitly recited in claim 1 as currently rejected (emphasis added):

1.) "a first antenna capable of transmission disposed in a lower part of the housing and a second antenna capable of transmission disposed in an upper part of the housing" (Figure 14 shows the antennas in a superimposed location in an upper part of the housing only);

2.) "a first antenna ... and a second antenna ... for radio communication" (antenna 11b being a receive-only antenna and arranged only for sensing the field in the vicinity of antenna 11a when antenna 11a is transmitting a signal);

3.) "a sensor for sensing when the first antenna or the second antenna *is covered* and outputting a detection signal" (the sensing in Mizoguchi is of the electrical field strength which is changed by body *contact*);
or

4.) "means for switching between said first antenna and said second antenna *for use based on said detection signal*" (switching between antennas being for sensing and comparison but

not for use and switching is not based on the comparison signal.

Therefore, it is respectfully submitted that the Examiner's assertion is clearly incorrect and that Mizoguchi falls far short of disclosing the present invention "in its entirety" but for the seconds antenna not being usable for transmission.

Much more importantly, however, while the Examiner clearly seeks to minimize the admitted deficiency of Mizoguchi, it is respectfully submitted that the admitted deficiency is quite profound: since Mizoguchi *provides only a single antenna for transmission* (and merely warns the user if body contact with the antenna is detected so that *the user can take corrective action*, a teaching or suggestion of even the concept of the invention cannot even be *approached* by Mizoguchi. More specifically, as previously pointed out, Mizoguchi presents a much different approach to the problem of transmission field strength being reduced by body proximity or contact; Mizoguchi *directly* detecting field strength through significantly complex signal processing and producing only a *warning* to the user but no antenna switching *which is responsive to detection of contact of the antenna with a body of a user* while the invention provides a much simpler detection of a much simpler condition of *coverage* of an antenna (and inferring antenna characteristic degradation therefrom) and *automatically* providing corrective action by switching between antennas "for use" based upon the assumption that if one antenna is (detected to be) covered, the other is not.

Thus, it is respectfully submitted that Mizoguchi does not contain teachings or suggestions which answer many explicit teachings of the claims and does not provide evidence of a level of ordinary skill in the art which would support a conclusion of obviousness in regard to the differences of distinctive features of

the invention, as claimed, therefrom, as enumerated above or lead to an expectation of success in producing the meritorious effects of the invention, much less by means of the features of the invention explicitly claimed. In summary, it is respectfully submitted that, but for being directed to the problem of signal attenuation due to body contact with a user, Mizoguchi is substantially irrelevant to the invention and does not significantly support the rejections made.

Vannatta et al. on the other hand may arguably be somewhat more relevant to the invention than Mizoguchi but also takes a very different approach to the problem and fails to teach significant features of the invention. Specifically, Vannatta et al. teaches switching between a plurality of diversity antennas, each of which could be used for transmission, but is principally concerned with signal reception. The housing of Vannatta et al. is of the folding type and one folding portion (which is assumed to be free of obstruction by the user's hand or body (see column 3, lines 48 - 57)) includes two antennas; one of which will have its impedance well-matched in the folded configuration and the other of which will have its impedance well-matched in the unfolded or open position. Switching between these antennas is thus performed in response to *detection of the folded or unfolded configuration* (see, especially, column 5, lines 55 - 65) and independently of any body contact or proximity or antenna coverage. The third (and/or fourth) antenna is located on or in the other portion of the housing and switching between it and one or the other of the antennas in the folding portion of the housing is performed in response to *received signal quality* (e.g. comparative degree of multi-path or inter-symbol interference - see column 3, lines 3 - 30) of signals sampled from each antenna (see column 6, lines 9 - 17).

Thus, Vannatta et al. fails to teach any detection of body proximity or contact with any of the antennas or antenna coverage much less provision of any automatic corrective action for transmission in response to such a detection. The antennas to be normally used are located where it is assumed that they will not be covered by a hand or other body portion and the only switching of antennas to the antenna which is located where it is likely to be covered is performed only when received signal quality provided by the antenna which is assumed not to be covered is less than the received signal quality provided by the antenna which is assumed to be likely to be covered (as opposed to switching from a presumably covered antenna to a presumably uncovered antenna) and without detecting of antenna coverage. Thus, numerous explicitly claimed features of the invention, some coincident with deficiencies of Mizoguchi are not taught or suggested by Vannatta et al.; most significant of which is the fact that Vannatta et al. is devoid of any teaching or suggestion of detection of the covering of any antenna, much less a transmission antenna while transmitting, or any control responsive thereto while Mizoguchi merely detects the field near a single antenna. Therefore, the combination of Mizoguchi and Vannatta et al. fail to approach even the concept of the present invention by detecting coverage of a transmission antenna by a body part and switching between transmission antennas in response thereto and any modification of their combined teachings to answer the claimed subject matter would necessarily involve impermissible hindsight in light of the present disclosure. Accordingly, it is respectfully submitted that the Examiner has not made a *prima facie* demonstration of obviousness of the subject matter of any of claims 1 - 3, 5, 7 or 8 based on the combination of Mizoguchi and Vannatta et al. and the rejection thereof is clearly in error.

Nevertheless, in an effort to expedite the prosecution of this application, claim 1 has been amended to more directly recite detection of "coverage" of an antenna (e.g. by detection of antenna impedance change, photodetectors and the like, as disclosed, and equivalent arrangements). In this regard, it is also respectfully submitted that the detection taught by Vannatta et al. is not even an indirect indication of antenna coverage; the switching between antennas 112 and 113 being based on detection of folded and unfolded configuration and switching between either of those antennas and antenna 206 being based on *received* signal quality such as reduced multi-path or inter-symbol interference which has little or nothing to do with whether or not a given antenna is covered by a body part of a user.

In regard to the other grounds of rejection including reliance on the combination of Mizoguchi and Vannatta et al., it has previously been pointed out that Werling et al and Bowen et al do not mitigate the deficiencies of Mizoguchi and it is respectfully submitted that they do not mitigate the deficiencies of Vannatta et al. or the combination of Mizoguchi and Vannatta et al.

As pointed out in the Appeal Brief filed December 9, 2005:

"Werling et al. is directed to a portable radio communication apparatus having a single antenna structure or array having a plurality of directional antennas as separately controllable elements such that the radiation pattern of the overall antenna structure or array can be modified. Werling et al. modifies the propagation pattern of an antenna array to reduce radio wave emission in the direction of the user's head. Werling et al. has multiple antennas that all

transmit simultaneously to generate a radiation pattern which is as omnidirectional as possible from a single nominal location although directional elements may be selectively deactivated in response to detection of the close proximity of the user by passive proximity detectors (detecting temperature and/or humidity). Werling et al. makes a clear distinction between such passive proximity detectors and approaches to detecting proximity of an antenna to human tissue through detected signal strength (see column 1, line 52 through column 2, line 34)."

"Bowen et al. is directed to enabling a portable communication handset to switch between operating as a handset or as a speaker phone based on proximity to a user. The means for switching between the handset mode or the loudspeaker mode for Bowen et al. is by using an infrared detector to sense the distance of the handset from the user's ear. Once the handset is detected to be more than a certain distance from the user's ear, the handset switches to loudspeaker mode. Bowen et al. is not at all concerned with the antenna arrangement of the portable communications handset and the infrared proximity detection merely serves to control sound pressure levels and frequency response in the audible range from a single microphone and a single speaker."

Thus, Bowen et al. is substantially irrelevant to the claimed subject matter (but for teaching infrared range detection), the function of the invention and even the problem addressed by the invention. There is no sensing of antenna coverage or antenna switching or

anything else having to do with the radio communication link but only switching into and out of the speaker phone mode of operation.

Werling et al., on the other hand, also approaches effects of user proximity in a manner much different from that of the invention. The principal concern of Werling et al. is not the improvement of performance of the radio communication link but the converse; reducing radiation in the direction of portions of the body of the user. Werling provides an array of directional antennas to provide an omnidirectional radiation pattern and then deactivates particular directional antennas of the array to reduce radiation *in the direction of the user*. While Werling et al. may teach detection of body proximity and direction, there is no detection of antenna "coverage" or switching "*between*" antennas "*for use*" in response to such detection. Therefore, it is clear that the Examiner has not made and cannot make a *prima facie* demonstration of obviousness of claims 6, 7 or 10 or any other claim based on a combination of Mizoguchi and Vannatta et al. with either of Bowen et al. or Werling et al.

Moreover, in regard to the rejection of claims 9, 11, 12 and 15 based on the combination of only Bowen et al and Werling et al. and dependent claims 10 and 14 it is clear that the combination of Werling et al. and Bowen et al. does not address the (claim 9) recitations of:

"a detector for detecting the
deterioration of an antenna characteristic;
and

"a switch for switching, on the basis of
the detected result, the operation from the
deteriorated transmission antenna to a
different transmission antenna"

and while Mizoguchi (included in the grounds of rejection of claims 10 and 14) may do so (although

Vannatta et al. does not, as discussed above), there is no motivational basis for modifying the basic combination of Bowen et al. and Werling et al. to do so, particularly in combination with an optical sensor, based on the respective functions of Bowen et al. and/or Werling et al. for the simple reason that an antenna need not be sufficiently proximate to a body part of a user to change antenna impedance or radiation field in order to deliver radiation which may be harmful. Again, it is respectfully pointed out that Mizoguchi detects change in radiated field strength due to body proximity or contact (the change being due to body exposure to the very radiation which Werling seeks to avoid altogether) rather than directly detecting antenna impedance change. (In this regard, the proposed modification in accordance with Mizoguchi would be improper under the precedent of *In re Gordon*, 221 USPQ 1125 (Fed. Circ., 1984). Therefore, control of Werling et al. based on detection of antenna impedance change may not be effective to achieve the intended purpose and Werling et al., teaching use of longer range proximity detection should be considered as teaching away from the modification proposed by the Examiner. In this regard, it should be appreciated that the invention addresses *both* increasing performance of the radio link *and* reduction of radiation exposure of the user by detecting "coverage" of an antenna and switching to another antenna "for use" which is presumably not covered when coverage is detected rather than simply modifying the directional radiation pattern of an array of antennas functioning as a single antenna.

Accordingly, it is respectfully submitted that all claims of the application recite features of the invention which are not addressed by any of the references relied upon and which do not present evidence of a level of ordinary skill in the art which

would support the conclusion of obviousness which the Examiner has asserted. Similarly, no *prima facie* demonstration of obviousness has been made in regard to any claim in the application and the various grounds of rejection are respectfully submitted to be in error and untenable. Therefore, reconsideration and withdrawal of the grounds of rejection of record is respectfully requested.

Since all rejections, objections and requirements contained in the outstanding official action have been fully answered and shown to be in error and/or inapplicable to the present claims, it is respectfully submitted that reconsideration is now in order under the provisions of 37 C.F.R. §1.111(b) and such reconsideration is respectfully requested. Upon reconsideration, it is also respectfully submitted that this application is in condition for allowance and such action is therefore respectfully requested.

If an extension of time is required for this response to be considered as being timely filed, a conditional petition is hereby made for such extension of time. Please charge any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041.

Respectfully submitted,



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